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de Geografia y Estadística, of the Société Zoologique de France, of the Entomological Society of Philadelphia, etc., and a valued and active correspondent of the Smithsonian Institution, of the Cambridge Museum of Comparative Zoölogy, and of several other noted scientific institutions.

— Gen. Sir Edward Sabine, K.C.B., F.R.S., and president of the Royal Society of London, died in June. Besides his activity as member of various scientific societies, he will be remembered for his studies of the phenomena of terrestrial magnetism, first undertaken while attached to the Arctic expeditions of Ross and Parry. His other papers on physical science were also numerous.

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### PROCEEDINGS OF SCIENTIFIC SOCIETIES.

PHILADELPHIA ACADEMY OF NATURAL SCIENCES, Feb. 29.—Miss Lewis spoke of the structure of the barbs of birds' feathers. The portions that are lustrous are composed of angular cells, while the duller parts are formed of globular cells. Professor Cope, while making certain corrections in statements made by Professor Peters, called the attention of the academy to an interesting species of snake from South America, described by the latter naturalist. This species would have to be placed very near to the African genus *Causus*, proving that the *Causus* group, which has fissured fangs, and must be placed among the higher serpents, exist in the new world. Dr. Leidy stated that by careful calculation he had estimated that a female anodonta contained 1,200,000 eggs.

March 8.—Professor Cope gave an account of the Permian reptilian fauna, and described a saurian intermediate between types before identified from that formation under the name of *Chilonyx rapidens*. The reptiles of this epoch all belong to the Theromorpha, and have no affinity to those of Mesozoic times. The batrachia and reptilia also resemble each other more closely than do those of other periods, and both resemble mammals in certain parts of their structure, so that the points of departure of all forms of vertebrate life above fishes appear to exist in the Permian. Professor Heilprin again insisted upon the impossibility of the polar-ice cap attaining any such thickness as some have attributed to it, and observed that if the principles he had enunciated were true, they would apply also to Alpine and other summits, which must rise above the line of greatest precipitation. He cited numerous facts from various observers to prove that such lofty summits have, in fact, a much thinner covering of snow than more moderate elevations, and are in some cases entirely bare. Such an Arctic glacier as was postulated by some would require 25,000 years to move from 65° N. lat. to its terminal moraine, even if it moved at the rate of one foot per day. With the infinitesimal slope it would have, two and a half inches would be a more prob-

able rate of daily flow. Professor H. C. Lewis argued that conditions different from the present existed in glacial times. For example, the facts observed indicated a depression south of the glaciated area in the Delaware valley and elsewhere, producing a greater water surface. Errors often arose from want of attention to the relative elevation of glacial striæ. Striæ upon the high levels indicate the general movement of the ice, while those upon the low levels show the local movements of the lower strata. Professor Cope argued that the evidence was against a polar-ice cap of sufficient thickness to give the glacial ice the necessary motion; but that there had been rather an ice ring south of the Arctic circle, which would account for the glacial phenomena.

March 15.—Professor Cope described various Permian reptiles. Professor Lewis spoke of his discovery, in deweylite, of crystals which the blow pipe and other tests proved to be serpentine. The mineral contained also partially altered feldspar, and small, sharp fragments of quartz. The micaceous serpentine was the result of the alteration of the mica, but, being crystallized, was not a true pseudomorph. The occurrence of serpentine in crystallized slate, and the direct alteration of graphic granite into a magnesian mineral were the points he wished to record.

March 22.—Miss Lewis exhibited drawings of the structure of feathers in various genera of birds, and showed that the cell characters might be utilized in classification. Professor Koenig stated that recent experiments with a weak solution of gold containing arsenic acid had convinced him that the compound known as purple of Cassius was not a chemical compound. Professor Cope said that upon the evidence of fossils received from Professor O. Darby he had confirmed the determination of the existence of Permian strata in Brazil.

March 29.—Dr. H. Allen called attention to individual variation, and showed that parts related to each other varied together. For example, whenever the lower jaw is malformed the malleus, which in its development is the proximal part of the same series with the lower jaw, has been found in many cases examined to be malformed also. Two idiot skulls were exhibited to show the retention of juvenile characters. It was shown that in senility atrophy of certain portions of the skull occurred, and that this atrophy always affected parts that are last acquired by the race, and are absent in lower animals, as, for example, the orbito-temporal septum. Occasionally parts normally lost by man reappear in senile skulls, such as the paroccipital process.

NEW YORK ACADEMY OF SCIENCES, June 4.—The following papers were read: Evidences of former glaciation on western mountain ranges, and their bearing on the question of an ice-period, by Professor John S. Newberry. Mr. George F. Kunz exhibited some interesting and remarkable minerals.